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| TROP PRUNER & HU, PC 8554 KATY FREEWAY SUITE 100 HOUSTON, TX 77024 | | | KIM, KEVIN | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2638 | |

DATE MAILED: 03/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/871,294

Applicant(s)

NATION, MED A.

Examiner

Kevin Y. Kim

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-5,8,9,11-13 and 16-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-5,8,9,11-13 and 16-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 1-3-2006 have been fully considered but they are not persuasive.

Applicant amended claim 1 such that now it requires "a complex input signal" modulating a fundamental frequency signal by way of "Gilbert cell multipliers." Based on this amendment Applicant traverses the previous rejection by asserting that the proposed combination of the cited references fails to show "multiples Gilbert cell multiplier." Claims 9 and 17 have been similarly amended.

The Sorrells patent describes an embodiment (see Fig.18) where a complex input, comprises of signals (1802, 1814), modulates complex signals (1808, 1812) of a fundamental frequency, using two phase modulators (1804, 1816). As explained in the previous Office action, the Aveno patent teaches a Gilbert cell multiplier in a phase modulator. Therefore, the combination of the Sorrells and Aveno patents teaches multiple Gilbert cell multipliers, since the two phase modulators require at least two Gilbert cell multipliers.

Thus, the rejection of the pending claims is sustained since the as set forth below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1, 3-5, 8, 9, 11-13 and 16-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sorrells et al (6,542,722 previously cited) in view of Aveno (5,844,449 previously cited).

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Claim 1.

Sorrells et al discloses a method, see Figs. 17, 18, 19A-19E, comprising;

providing (step 904) a first signal (1808, 1812) having a fundamental frequency,
providing (steps 1706, 1718) a complex input signal (1802, 1814) and the first
signal (1808, 1812) to phase modulators (1804, 1816) to modulate the first signal with the
input signal (step 902),

tuning (step 910) the modulation to a harmonic of the fundamental frequency to
produce a modulated signal having a carrier frequency near the harmonic, wherein the
modulated signal having substantially more spectral energy near the harmonic than the
fundamental frequency. See the filter (1836) removes unwanted frequencies outside a
chosen harmonic and col. 26, lines 61-63.

Sorrells et al discloses all the subject matter claimed, as explained above, but fails to
teach the modulation including "Gilbert cell multipliers." Abeno teaches that a Gilbert cell
mixer is mainly used in a conventional phase modulator. See col. 1, lines 26-28. Thus, it
would have been obvious to one skilled in the art at the time the invention was made to construct
the phase modulators (1804, 1816) of Sorrells et al with Gilbert cell multipliers because it is
mainly used in a phase modulator as taught by Abeno.

Claims 3 and 4.

See the filter (1836) that establishes a passband that passes the harmonic and thus filters
out spectral energy of the second signal located near the fundamental frequency. See col. 18,
lines 10-16.

Claim 5.

See col. 18, lines 13-19 that describes the use of the third harmonic, which is “an odd harmonic.”

Claim 8.

Fig. 18 shows a bandpass filter (1836) coupled to output terminals of the phase modulators, and thus to output terminals of the Gilbert cell multipliers, which would be used in the phase modulators as explained in connection with claim 1 above.

Claim 9.

Sorrells et al discloses a system, see Figs. 18, 19A-19E, comprising;
an oscillator (1806) for generating a first signal (1808) having a fundamental frequency,
a modulator (1804,1816) for modulating an input signal with the first signal,
a filter (1414) coupled to the modulator to tune the modulation to a harmonic of the
fundamental frequency to produce a modulated signal having a carrier frequency near
the harmonic, wherein the modulated signal having substantially more spectral energy
near the harmonic than the fundamental frequency. See the filter (1414) that removes
unwanted frequencies outside a chosen harmonic and col. 26, lines 61-63.

Sorrells et al discloses all the subject matter claimed, as explained above, but fails to teach the phase modulators comprising “Gilbert cell multipliers.” Abeno teaches that a Gilbert cell mixer is mainly used in a conventional phase modulator. See col. 1, lines 26-28. Thus, it would have been obvious to one skilled in the art at the time the invention was made to construct

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the phase modulators (1804, 1816) of Sorrells et al with Gilbert cell multipliers because it is mainly used in a phase modulator as taught by Abeno.

Claims 11 and 12.

See the filter (1836) that establishes a passband that passes the harmonic and thus filters out spectral energy of the second signal located near the fundamental frequency. See col. 18, lines 10-16.

Claim 13.

See col. 18, lines 13-19 that describes the use of the third harmonic, which is “an odd harmonic.”

Claim 16.

Fig. 18 shows a bandpass filter (1836).

Claims 17.

Sorrells et al discloses a transmitter, see Figs. 18, 19A-19E, comprising;

a modulation system (1004) to receive a first signal (1808, 1812) having a fundamental frequency, receive a complex input signal (1802, 1814), modulate the first signal with the input signal, tune the modulation to a harmonic of the fundamental frequency to produce a modulated signal having a carrier frequency near the harmonic, wherein the modulated signal having substantially more spectral energy near the harmonic than the fundamental frequency (see the

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filter (1836) that removes unwanted frequencies outside a chosen harmonic and col. 26, lines 61-63) and

circuitry (1008) to communicate the modulated signal to a communication medium.

Sorrells et al discloses all the subject matter claimed, as explained above, but fails to teach the modulating system comprising “Gilbert cell multipliers.” Abeno teaches that a Gilbert cell mixer is mainly used in a conventional phase modulator. See col. 1, lines 26-28. Thus, it would have been obvious to one skilled in the art at the time the invention was made to construct the phase modulators (1804, 1816) of Sorrells et al with Gilbert cell multipliers because it is mainly used in a phase modulator as taught by Abeno.

Claims 18.

Sorrells et al discloses that the modulation system comprises a modulator (1804,1816) and a filter (1836), coupled to the modulator, to tune the modulation to a harmonic of the fundamental frequency to produce the modulated signal (1838). See col. 26, lines 61-63)

Claims 19 and 20.

See the filter (1836) that establishes a passband that passes the harmonic and thus filters out spectral energy of the second signal located near the fundamental frequency. See col. 18, lines 10-16.

Claim 21.

Fig. 18 shows a bandpass filter (1836).

Claim 22.

See col. 18, lines 13-19 that describes the use of the third harmonic, which is “an odd harmonic.”

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Y. Kim whose telephone number is 571-272-3039. The examiner can normally be reached on 8AM --5PM M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

March 8, 2006

/ Kevin Kim

KEVIN KIM
PATENT EXAMINER